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2 **ABSTRACT**

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A technique is described for performing multiple video processing tasks in a single operation, as opposed to serially. For instance, a technique is described for de-interlacing a principal video stream at the same time that at least one video sub-stream is combined with the principal video stream. Performing these tasks in a single call to a graphics processing unit, as opposed to staggered serial calls, reduces the bandwidth requirements of the processing operations. This, in turn, can enable a computing device to perform these multiple operations at full frame rate. In one implementation, different texturing units are respectively assigned to the principal video stream and the video sub-stream. The graphics processing unit interacts with these texturing units and associated memory locations substantially in parallel, thus providing the above-described bandwidth savings.